

SURVEY OF THREATENED CHEER PHEASANT *CATREUS WALLICHII* IN GARHWAL HIMALAYA¹

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From October 2000 to December 2001, a survey on distribution of Cheer Pheasant *Catreus wallichii* was conducted in Pauri and Chamoli districts of Uttarakhand, India. Twenty-six sites in thirteen areas were identified to hold Cheer, between altitudes of 950-2,250 m in the chir pine and pine mixed forest. At all the sites, except Adwani Reserve Forest of Pauri Division, the density of Pheasant was found quite less (<2 birds/sq. km). Habitat destruction, due to fire, heavy grazing, fuel, and fodder collection was apparent at most sites. Hunting, collection of eggs and loss of brood due to fire were identified as main reasons for population decline.

Key words: Threatened, Cheer Pheasant, *Catreus wallichii*, Garhwal Himalaya, habitat degradation

INTRODUCTION

Cheer Pheasant (Order Galliformes, Family Phasianidae) is one of the pheasants of the Indian subcontinent. Its range was formerly along the Himalayan region, between the Indus and Kali-Gandaki rivers, within an altitude of 1,000-3,250 m (Garson *et al.* 1992). It prefers steep hillsides with precipitous cliffs, open ground with scattered trees (Delacour 1977; Ali and Ripley 1983; Johnsgard 1986).

In the past, over hunting and habitat destruction caused huge decline in population of this endemic species. A few decades ago, many Cheer sites were located and studied also in Nepal (Lelliott 1981, 1987; Bland 1987), Pakistan (Roberts 1970; Severinghaus *et al.* 1979) and India, namely Himachal Pradesh (Gaston *et al.* 1981, 1983; Garson *et al.* 1992; Sharma and Pandey 1989) and Kumaon region of Uttarakhand (Rasool 1984; Young *et al.* 1987). The Garhwal Himalaya had only accounts written by British naturalists living in India before independence (Jerdon 1864; Hume and Marshall 1879; Osmaston 1921). Post Independence there has been a solitary sighting of a female Cheer Pheasant at Mandal (near Gopeshwar), Chamoli district by Sathyakumar *et al.* (1992) and observations (extensive throughout the Cheer range) by Gaston (1987b). Gaston (1987b) stressed the need for surveys in Uttarakhand (formerly UP hills) and Sathyakumar *et al.* (1992) mentioned certain areas within Kedarnath Wildlife Sanctuary as possible sites.

In this paper we describe the findings of a year-long survey when many Cheer sites were accurately located for

the first time in the districts of Pauri and Chamoli of Uttarakhand, India.

STUDY AREA AND METHODS

Survey for Cheer Pheasant was carried out in the districts of Pauri and Chamoli of Uttarakhand (29° 22' - 31° 07' N and 78° 07' - 80° 10' E, 750-3,750 m altitude). The vegetation of the study area can be broadly divided into sub-tropical deciduous forest, chir pine forest, temperate forest, coniferous forest, subalpine forest, alpine scrub and meadows (Champion and Seth 1968). In the local (Garhwali) dialect, in many areas of Pauri and Chamoli district, Cheer pheasant is known as 'Chair' or 'Phaklas'. Information regarding the occurrence of Cheer Pheasant was gathered from local rural fodder and fuel collectors, hunters and forest personnel. On the basis of available information, a team consisting of 2-3 observers visited the potential sites. At each site, the survey was conducted for 2-7 days, in the morning from 0500 to 1000 hrs, and in the afternoon from 1400 hrs to dusk.

Trail Walk Method (Gaston 1980) was undertaken for the presence/sightings of the Pheasant. From October 2000 to December 2001, many sites in different localities were surveyed. At each site trail walks of 4-8 km (depending on the topography and the area of the site) were covered silently and information was recorded on: (i) location of site, (ii) habitat types (iii) main vegetation (iv) number of Cheer Pheasant sighted (v) distance covered and (vi) time spent by the survey team. Area of each site surveyed for the sightings was

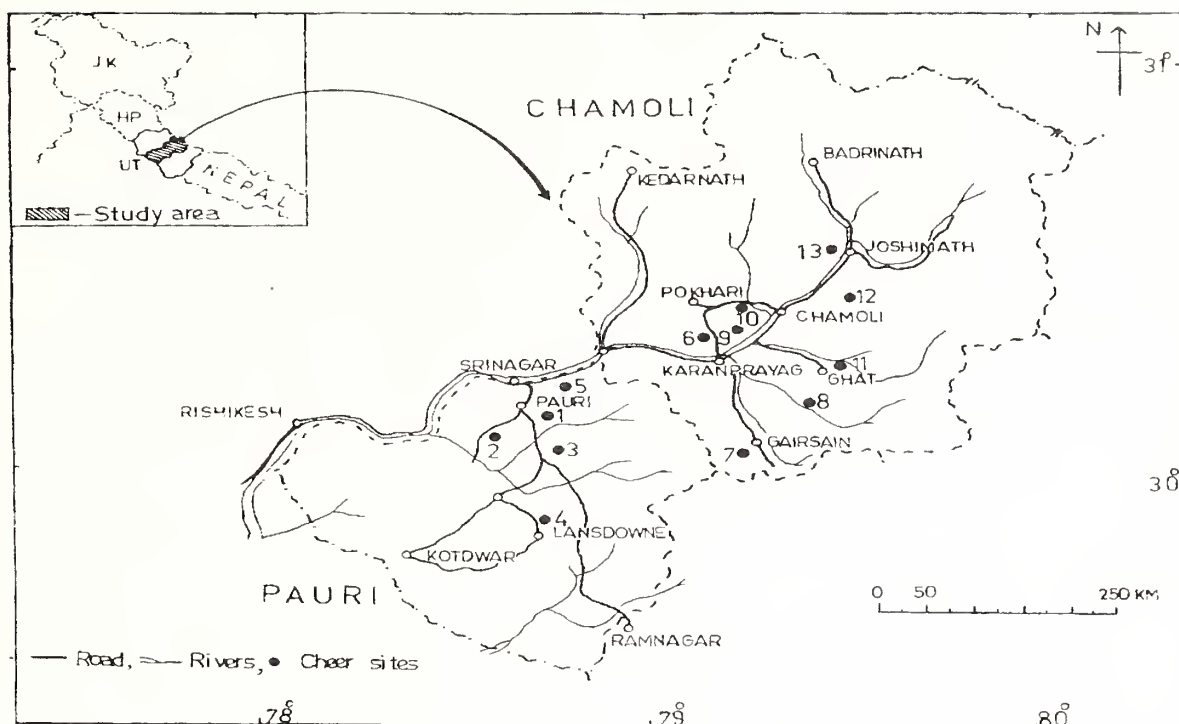


Fig. 1: Sighting areas of Cheer Pheasant in Garhwal Himalaya (1-Pauri, 2-Adwani, 3-Agrora, 4-Lansdowne, 5-Chhantikhali, 6-Karanprayag, 7-Gairsain, 8-Narayanbagar, 9-Nandprayag, 10-Trisula, 11-Ghat, 12-Peepalkoti and 13-Joshimath)

calculated from toposheets.

All the walks were repeated at least thrice to as many as 14 times to make direct sightings of maximum number of individuals at each site. The distance covered and time spent at each site was not proportional because of differing topography and difficult terrain. Chicks (being a seasonal phenomenon) were not taken as part of a population. A cumulative area of 310 sq. km of 56 sites was surveyed in 67 visits (does not include number of repeated trails on consecutive days/site). Only sites with direct sightings were taken into account.

Density is defined as maximum individuals per site divided by area of the site, and encounter rates (Birds/km and Birds/hour) as total birds sighted at each site divided by distance covered and total birds sighted at each site divided by time spent respectively.

Sampling effort (area available, distance covered, time spent and average of the three) in different habitats and altitude categories is given as proportions of the respective totals and compared with proportions of observed number of birds in each category. For the aspect category, an impression of sampling intensity is presented in terms of area covered, as the complex topography hinders the generation of required data for different aspects of the habitat surveyed. The observed pattern may have biases, as it is not corrected for availability.

RESULTS

Distribution and Status

Table 1 represents the sites holding Cheer with the associated data on altitude, slope aspect, habitat type, sightings, number of birds sighted, encounter rate (birds/km and birds/hour), density and hunting pressure. In 13 areas (Fig. 1), Cheer Pheasant was observed in 89 sightings at 26 different sites (covering an area of 124.4 sq. km). It was sighted in 5 areas of Pauri district, namely Pauri, Adwani, Agrora, Lansdowne and Chhantikhali and in 8 areas of Chamoli district, namely Karanprayag, Gairsain, Narayanbagar, Nandprayag, Trisula, Ghat, Peepalkoti and Joshimath.

The highest number of birds (12 individuals, including 3 males, 5 females and 4 subadults) were observed in Adwani Reserve Forest when the area was surveyed in the beginning of winter season. Other than adult individuals, two nests with 6 and 8 eggs were observed at Ghurdori (1,680 m) and Paukhal (1,600 m) respectively in May 2001. Out of the eight eggs (at Paukhal), 7 hatched in the following month. Chicks and subadults were also sighted at Bingarh, Gumkhal and Joshimath from June to August 2001; the highest number of chicks (8) was sighted at Joshimath.

Density of Cheer Pheasant was recorded to be < 2 birds/sq. km except at Adwani (2.18 birds/sq. km), and the lowest density of 0.34 birds/sq. km was observed at Joshimath.

Table 1: Records of Cheer Pheasant *Catreus wallichii* in Garhwal Himalaya (Based on actual sightings)

Area / site	Date of Survey	Altitude	Slope aspect	Habitat types	Total sightings	Total Individuals Sighted	Individuals sighted in single sightings		Encounter rate		Distance from Human habitat (km)	Hunting Pressure
							Max.	Min.	Birds per km	Hour		
DISTRICT PAURI												
1. Pauri												
Ghurdori	10-12 Nov. 2000	1,520-1,790 m	N-W	CPF, PMF	3	15	7(1.50)	3	0.43	1.13	0.2	+
Thapli	21-22 Dec. 2000	2,000 m	NE	CPF	1	5	5(1.25)	-	0.23	0.40	2.0	+
Chairmunda	25-28 Dec. 2000	1,550-1,730 m	N,E,S	CPF	3	12	5(1.00)	3	0.28	0.72	0.0	+
Adwani	19-23 Nov. 2000	1,760-2,050 m	NE	PMF	4	38	12(2.18)	7	0.50	1.76	2.0	-
Agrora	28-30 Dec. 2000	1,540-1,720 m	N-W	CPF	4	26	9(1.42)	3	0.67	2.11	2.5	+
Lansdowne												
Lansdowne	14-16 Jun. 2001	1,510-1,700 m	E	CPF	2	6	4(1.00)	2	0.16	0.48	1.0	+
Paukhal	21-24 May & 24-26 Jun. 2001	1,530-1,650 m	E-N-W	CPF	7	13+21*	2(0.55)+7*	1	0.19	0.35	0.1	+
Gumkhal	25-27 Aug. 2001	1,560-1,750 m	NE	CPF	8	17+12*	3(0.60)+4*	1	0.37	0.89	0.0	+
Parsolikhal	28-29 Aug. 2001	1,510-1,650 m	E,NW	CPF	2	6	4(1.14)	2	0.36	0.37	0.7	+
Chhantkhal	15-16 Nov. 2000	1,500 m	SE	CPF	1	5	5(1.35)	-	0.23	0.94	1.5	-
DISTRICT CHAMOLI												
6. Karanprayag												
Khalsemi	13-15 Jan. 2001	1,400-1,500 m	NE	CPF	3	13	5(0.84)	4	0.50	0.86	2.0	+
Bingar	28-30 Jun. 2001	1,450-1,730 m	NE	CPF	9	35+18*	4(0.72)+3*	3	0.95	1.73	4.5	-
Udamanda	11-12 Jan. 2001	1,600-1,750 m	NW-E	PMF	2	8	4(0.83)	-	0.31	0.94	3.6	-
Gairsain	13-15 Mar. 2001	1,765-1,860 m	N,E,W	PMF	3	10	4(0.61)	2	0.25	0.68	1.5	+
Narayanbagar												
Kaparteer	7-8 Mar. 2001	1,550-1,730 m	NE	PMF	3	8	4(0.66)	2	0.28	0.45	0.5	-
Khateli	9-10 Mar. 2001	1,755 m	NE	CPF	1	3	3(0.46)	-	0.10	0.35	1.0	+
Nandprayag												
Sonala	22-24 Jan. 2001	1,260-1,500 m	N,S,W	CPF	3	13	6(1.62)	2	0.36	1.01	1.5	-
Ultraun	16-19 Jan. 2001	1,200-1,700 m	E,N,W	CPF	6	31	7(1.84)	3	0.69	1.93	1.6	-
Thirpak	22-23 Jan. 2001	1,350-1,650 m	NNE	CPF	3	7	3(0.93)	2	0.35	0.56	1.0	-
Trisula												
Ghursal	17-21 Nov. 2001	1,400-1,650 m	N,E,S	CPF	3	10	4(1.00)	2	0.17	0.52	1.5	+
Siropani	22-25 Nov. 2001	1,510-1,660 m	NE,S	CPF	4	19	6(0.81)	4	0.29	1.13	2.5	-
Barmath-Hapla	26-30 Nov. 2001	1,550-1,750 m	N,W,SW	CPF	3	13	5(0.83)	3	0.18	0.59	1.7	+
Ghat	24-25 Jan. 2001	1,530-1,650 m	N,SE	PMF	2	10	7(1.52)	3	0.47	1.25	2.0	+
Peepalkoti												
Birahi	21-22 Mar. 2001	950 m	SE	CPF	1	4	4(1.60)	-	0.23	0.47	0.5	+
Sallagaun	19-20 Mar. 2001	1,270-1,500 m	S-E	CPF	3	13	5(1.56)	3	0.54	1.30	0.3	-
Joshimath	17-18 Aug. 2001	1,800-1,950 m	N-W	CPF	5	10+17*	2(0.34)+8*	2	0.31	0.83	3.0	-
					89	350+68*	129+22*					

Total distance walked = 967.6 km; Total area covered = 124.4 sq. km; Total time spent = 387.60 hours

Values in the parentheses indicate density/sq. km; * chicks, CPF- chir pine forest; PMF- pine mixed forest

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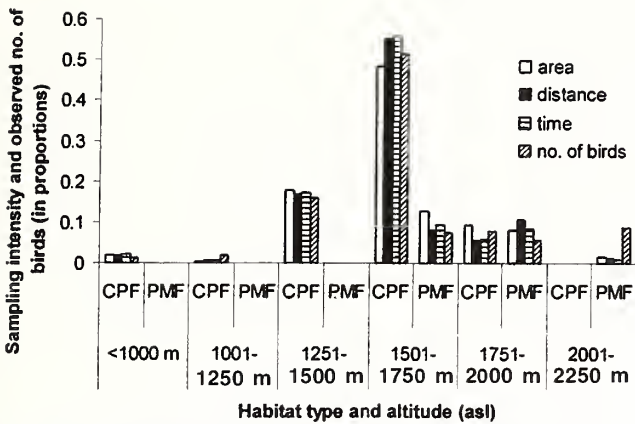


Fig. 2a: Sampling intensity and number of Cheer observed across different habitats and altitude categories

Encounter rate per kilometer was highest (0.95) at Bingar and lowest (0.10) at Khateli, whereas encounter rate per hour was highest (2.11) at Agrora and lowest (0.35) at Paukhal.

Habitat Preference

Cheer Pheasant was recorded between 950-2,250 m altitude and on all aspects in the chir pine and pine mixed forests comprised by *Pinus roxburghii*, *Phyllanthus embellica*, *Quercus incana*, *Rhododendron arboreum*, *Myrica nagi* (trees); *Rhus parviflora*, *Woodfordia fruticosa*, *Argemone* sp. (shrubs) and grass species like *Cymbopogon martinii*, *Heteropogon contortus*, *Anthistiria gigantea*, *Saccharum* sp.

Table 2 shows sighting of Cheer at different altitudes and habitats, where the largest number of Cheer were found between the altitude 1,501-1,750 m and in chir pine habitat. Cheer was observed to use chir pine forest (CPF) below 2,000 m and pine mixed forest (PMF) above 1,500 m. The sampling efforts

Table 2: Number of Cheer Pheasant *Catreus wallichii* sighted at different altitude and habitats

Habitat	Altitude in m (above msl)						TOTAL
	< 1000	1001-1250	1251-1500	1501-1750	1751-2000	2001-2250	
CPF	4	7	55	180	27	0	273
PMF	0	0	0	26	20	31	77
TOTAL	4	7	55	206	47	31	350

CPF- Chir pine forest, PMF- Pine mixed forest

Table 3: Number of Cheer pheasant *Catreus wallichii* sighted at different aspects and habitats

Habitat	Slope aspect								TOTAL
	N	NE	E	SE	S	SW	W	NW	
CPF	34	86	52	14	16	3	32	36	273
PMF	12	29	19	3	0	0	4	10	77
TOTAL	46	115	71	17	16	3	36	46	350

CPF- Chir pine forest, PMF- Pine mixed forest

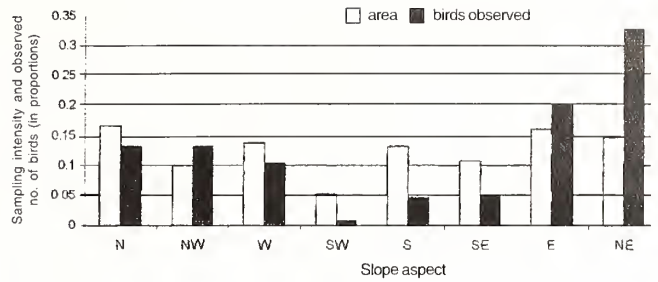


Fig. 2b: Sampling intensity and number of Cheer observed across different aspects

(three different parameters used) in each altitude and habitat category are fairly consistent (Fig. 2a). About 75% of the surveyed areas are of chir pine forest; and the altitude range of 1,501-1,750 m comprises approximately 60%. The number of birds sighted in the altitude range and habitat category is more or less proportional to the sampling efforts, except in the PMF habitat in the 2,001-2,250 m altitude category where a significantly higher number of birds were sighted.

Table 3 illustrates that the NE aspect was used more in both the habitat types. The proportion of birds sighted in the NE aspect is significantly greater as compared to the sampling intensity (Fig. 2b). In the SW, S and SE aspects less birds were sighted. The sampling effort is lowest in SW aspect.

DISCUSSION

The present study is the first species-specific survey on Cheer Pheasant in Garhwal Himalaya. Because the survey team was very small, and as our data is based on direct sightings, the calls count method also suitable for surveying Cheer Pheasant (Gaston 1980) was not used. Cheer Pheasant is one of the most soberly feathered Indian pheasants (Singh

and Singh 1995) and a very shy bird. It emerges from thick vegetation cover only in the morning (from their roosting tree) and also from late afternoon till dusk. Again, it exhibits perfect camouflage with fallen pine needles and dry grass cover of the habitats. Despite the difficulties in locating this pheasant, 129 individuals of Cheer Pheasant were recorded (this does not represent the actual population) at 26 sites.

129 individuals represent the cumulative total of the maximum individuals sighted at each site. The mean of total individuals sighted at each site (other than in case of single sighting) would give a lower value (as the difference between maximum and minimum individuals sighted are as high as 5); and 350 individuals recorded are the cumulative total of all the 89 sightings, where many individuals/groups were repeatedly sighted. The maximum individuals sighted at each site give a number closer to the actual population size. The higher number of birds recorded during winter season is a function of winter flocking (Kaul 1989) and might represent the actual population size. The observation of maximum individuals (more than a pair in a single sighting) during the breeding season may be the result of subadults (that cannot find a mate) of the previous year accompanying the breeding pair.

Sightings of the Cheer Pheasant at 26 different sites indicate a fair occurrence of this threatened pheasant in Garhwal, Uttarakhand. But low densities of pheasant indicate that this threatened species is not safe in Garhwal also. More than a century ago, Hume and Marshall (1879) described Cheer Pheasant as common in Garhwal and Kumaon regions. The decline in populations of Cheer from a common status in the late 19th century to its current threatened state in the Garhwal region of Himalaya is the cumulative effect of more than a century long practice of excessive hunting and habitat degradation.

Despite the complete ban under the Wildlife Protection Act (1972), hunting of pheasants during the winter months is a prevailing and increasing phenomenon. Most of the Cheer sites that have been located are under hunting pressure. For instance, at the Agrora site, 8 of the 9 birds sighted were shot, leaving a single male; and at Ghurdori and Gumkhal (August 2001), we found the remains of hunted birds.

The presence of Cheer Pheasant at 950 m at Birahi (in Chamoli district) is a significant observation, as these pheasants have never been observed at such low altitudes. Gosh (1997) had unusual sightings of a pair of Cheer Pheasant at 4,545 m in Uttarakashi, but we never encountered the bird above 2,050 m. We believe that there might be more sites, which we could not locate due to lack of surveys at such potential sites.

Cheer prefers an altitude range of 1,251-2,250 m (Table 2) in chir pine and pine mixed forest. A gradual change in habitat

(pine mixed forest) selection occurs from 1,501 m onwards, which illustrate that topography is an important component of cheer habitat. The proportionately significant sighting of Cheer Pheasant in PMF at the altitude category of 2,001-2,250 m (Fig. 2a) is due to their greater availability (maximum number of Cheer – 12, was sighted in this category). The sightings of Cheer in chir pine forest (approximately 75%, in terms of area and number of sites) suggest a close relationship. Many of the habitats (Garson 1983; Young *et al.* 1987; Sharma and Pandey 1989; Garson *et al.* 1992) in other areas of Cheer range are also of Chir pine. Cheer was observed more on NE slope aspect (in both the habitats) and is more or less concentrated from NW to E through N. This gives a clear impression that Cheer prefers slopes that do not receive direct sunlight most of the day; and have comparatively softer soil, which enables it to dig out the dietary tubers and roots.

Restriction of habitat selection to chir pine and pine mixed forest makes the Pheasant vulnerable to extinction as the grass cover of *Anthistiria gigantea*, *Cymbopogon martinii*, *Heteropogon contortus*, *Saccharum rupifilum* is used for making brooms, cords, thatch of cattle sheds. In all surveyed Cheer habitats, it attracted the adjoining villagers and nomadic tribes, leading to frequent habitat disturbance. Fires, extensive grazing, fodder and fuel collection within the Cheer habitat is a common practice, except at few sites, e.g. Adwani, Bingar, Utraun and Joshimath, where the habitats were intact and almost free from human interventions during the survey.

Though Cheer adapts well to the human interventions described; fires necessary for maintenance of the open grass and scrub communities (Gaston 1987a) can also result in brood losses during the nesting season. The eggs observed at Ghurdori were destroyed due to forest fire. Such losses along with predation (by *Vulpes* and *Martes*) and hunting could lead to extermination of this threatened bird from the various Cheer holding sites of this region.

Thus, the persistence of the threatened monotypic Cheer Pheasant in the Garhwal region and elsewhere could only be ensured through proper habitat management, regular monitoring of populations and particularly a strict and effective prohibition on poaching.

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